

Claims

What is claimed is:

- [c1] A method of forming a tooth rock bit, comprising:
- attaching at least one cutting element to a surface of a cone; and
 - depositing a hardfacing layer on the at least one cutting element prior to the attaching.
- [c2] The method of claim 1, wherein the attaching comprises at least one selected from a group consisting of electron beam welding, friction welding, and brazing.
- [c3] The method of claim 1, wherein the depositing the hardfacing layer comprises at least one selected from a group consisting of high velocity air fuel spraying, flame spray, plasma arc, plasma-transferred arc, sintering, furnace brazing, furnace fusing, pressure assisted sintering and reaction bonding.
- [c4] The method of claim 1, wherein the hardfacing layer comprises at least one material selected from a group consisting of sintered tungsten carbide, cast tungsten carbide, and macro-crystalline tungsten carbide.
- [c5] The method of claim 1, wherein the hardfacing layer is deposited to have a thickness between 0.030 in and 0.180 in.
- [c6] The method of claim 1, wherein the hardfacing layer has a thickness dependent on properties of formation to be drilled by the tooth rock bit.
- [c7] The method of claim 1, wherein the depositing of the hardfacing layer comprises applying the hardfacing layer to a leading face of the at least one tooth.
- [c8] The method of claim 1, wherein the at least one tooth comprises a gage tooth.

- [c9] The method of claim 1, wherein the depositing of the hardfacing layer comprises automatically applying the hardfacing layer.
- [c10] A method of forming a tooth rock bit, comprising:
attaching a first cutting element and a second cutting to a surface of a cone; and
depositing a hardfacing layer on the first cutting element and the second cutting element prior to the attaching.
- [c11] The method of claim 11, wherein the hardfacing layer deposited on the first cutting element is different from the hardfacing layer deposited on the second cutting element.
- [c12] The method of claim 1, wherein the depositing of the hardfacing layer on the first cutting element is applied differently from the hardfacing layer on the second cutting element.
- [c13] A method of forming a tooth rock bit, comprising:

forming at least one cutting element having a hardfacing layer;

attaching at least one cutting element to a surface of a cone; and

prior to the attaching, depositing a layer of hardfacing layer on the at least one cutting element at substantially the same time as the forming of the at least one cutting element.
- [c14] The method of claim 1, wherein the at least one cutting element comprises a parent metal substrate and wherein the hardfacing layer comprises a hard metal composition.

[c15] A tooth rock bit, comprising:

a cone having a surface; and

a preformed cutting element attached to said surface, wherein the preformed cutting element comprises a hardfacing layer, wherein the hardfacing layer is deposited prior to the preformed cutting element being attached to said surface.